not be almost universally adopted, when cement or stucco are intended to be used, as it is more effective and durable, and is not at all more costly.

It has been frequently asserted that no chemical or mechanical combinations of matter will result in a successful imitation of what has been effected in nature's laboratory, and that no artificial materials can be made equal in durability to natural productions; yet it would, I think, be difficult to find in England any description of building stone more capable of withstanding, for a lengthened period, the vicissitudes of our climate, than thoroughly well made and well burnt bricks, and terra cotta.

It is true that the firing to which bricks and terra cotta are subjected may be fairly considered as constituting a great difference in their power of resisting atmospheric influence, as compared with any of the cements which are now usually employed; but it is quite certain that cements and mortars have been made, which, for hardness and durability, were almost, if not quite, equal to the hardest bricks. And I cannot doubt the possibility of again doing, in our own time, what was certainly accomplished at a period when, however much grandeur of conception and just appreciation of beautiful forms might have exceeded those with which men's minds appear to be endued at present, the physical sciences were but little known, and contributed only in a very slight degree to the comforts and the social enjoyments of the human race. A proof that I am not overstating the power of resistance to atmospheric influences which mortars and cements, when properly prepared, do undoubtedly possess, is afforded by a piece of Roman mortar, from Wroxeter, now exhibited, which has evidently been used as an external cement or stucco, and which must have been exposed to the action of rain and frost for fourteen or fifteen hundred years.

It is said that failures very frequently occur in works which have been executed in cement, and that the decorations produced in artificial materials are always deficient in that sharpness of outline, and delicacy of feeling, which constitute the great charm of architectural enrichments. But I would ask whether it is not possible to lessen, if not wholly to remove, these very grave objections, by great attention on the part of the architect in designing, and especially in inspecting the modelling of his enrichments whilst in the clay;—by a determination, on his part, to become thoroughly acquainted with the nature and properties of all such cements as he intends to employ for the covering or decoration of his buildings, whether internally or externally, so that he may be enabled to form a correct opinion when he sees the work in progress, whether the materials have been properly prepared by the manufacturer, and then sent to the building in a state fit for use by the contractor, and are being judiciously mixed and applied by the workmen and labourers;—by employing in the execution of his works such men only as are thoroughly masters of their business, making them responsible for the reparations and reinstatements of any portions of the works which may fail within five or seven years after their completion;—and by securing the services of clerks of the works, or foremen, who are well acquainted with the nature of the cement to be employed, and who will keep a vigilant eye over the proceedings of the workmen.

But some will doubtless tell me, that if, in order to prevent failures in the effect, or in the durability, of cement work, all this care and circumspection are required, failures and imperfections are quite certain to occur. This may be true; but if true as regards cement, it is also true of other works required in the erection and completion of a building. And how, let me ask, can the imperfections so often found to exist in the plumber's work, and in the drainage of our buildings; in the carpentry of the roofs, floors, and partitions; in the foundations and the brickwork, be prevented? How can the disintegration and crumbling away of the most prominent members of stone cornices, strings, balconies, and chimney-tops, within a few years after their completion, be avoided, excepting by the same degree of knowledge, care, and skill, on the part of the architect, the contractor, the clerk of the works, the foreman, and the workmen, which I have insisted on as essential to the successful employment of cements?

There are, however, among those who have most strenuously opposed the use of these materials, a considerable number who ground their objections not on the want of durability, the chances of failure, or the extra cost, but on their want of reality, their resemblance to some natural productions, and the smallness of their cost, as compared with the stone casings which they sometimes resemble. Now, however desirable, and proper, and commendable it may be, or doubtless is, to introduce into the structures which are reared in honour and for the worship of the great Creator, the most valuable and the choicest of earth's productions, yet it must, I think, be admitted, that the qualities of the materials in which the thought of a great artist is embodied (so that it possess but durability and beauty), are in all other cases of very secondary importance. I fear, however, that the disposition to place so high a value on costly stones, and woods, and metals, which appears lately to have prevailed amongst those who profess to be the patrons of the arts, is calculated to produce on the minds of the people generally false impressions, because it leads them to admire that which is difficult of attainment except to the possessors of great wealth, instead of that which is truly grand, and beautiful, and original in design.

That species of admiration which is excited by the costliness of the materials employed in works of art, has always appeared to me to partake considerably of the vulgar and the barbarous! for, as much as the heavens are higher than the earth, so much, do I believe, the emanations of the mind to be above and beyond the mere vehicle in which they are embodied. Whatever is really beautiful in form, or truly harmonious in colour, should be enshrined as amongst the most precious of man's productions; and I cannot doubt that the time will come (although, perhaps, not in our day) when the immaterial thought of the artist shall be more highly valued than any stones, or woods, or metals, however rare or costly, in which it may clothed. Much better is it, in my opinion, to have the emanations of deep thought, the creations of those minds which have been embued with a due appreciation of the beautiful in form, embodied in materials which might endure for only half a century, than the eternal stereotypes we now see rising throughout this great and wealthy country, perpetuated in stone which would endure for countless ages.*

JAMES THOMAS KNOWLES.

AN ARGUMENT AGAINST THE USE OF CEMENT DECORATION.

THE real source of the satisfaction we derive in the contemplation of architectural decoration executed in *constructive* material, be it stone or brick, is the idea it suggests of the union of decorative features with constructive requirements, and the meaning and propriety which such decoration thereby acquires. It is, in truth, nothing more than a tacit acknowledgment, a sort of homage, *unwittingly* paid to the truths and reality of this last great principle of propriety in architecture, which requires that art be the handmaid of necessity, convenience, and utility,—decoration the drapery of construction, beauty, and proportion, either in detail or in mass,—the skilful and artistic arrangement of those features which the purpose of the building demands, or the constructive framework of the edifice requires; and it is the absence of this *constructive necessity* and propriety, irrespective of other qualities which may be disputed, that renders the use of cement distasteful and unsatisfactory, not only to the educated professional eye, but even to the instinct of sound sense and correct taste.

It cannot, indeed, be denied that cement is purely a decorative and not a constructive material, and that this constitutes its real difference from stone when adopted for ornamental purposes,—that the true and legitimate application of architectural ornament is to decorate essential members of architectural construction, and not to conceal their purpose, use, or meaning; and, consequently, that the employment of cement to imitate the decoration of stone construction is an architectural solecism we should never *defend*, although we may admit its use under certain extenuating circumstances. Neither, might I say, in conclusion, is there quite that analogy between the stone facing to a building and a mere cement front which Mr. Knowles urged in reply to one of Mr. Scott's arguments. In this latter instance, although not adding to the strength of the edifice, the stone is used purely as a constructive material, and is put together and attached to the building in a manner which denotes its employment in this capacity, although it be applied as decoration, standing, as it were, wholly and solely by its own gravity, as in the piers or walling, or by the application of such of the mechanical forces as are suitable to its physical condition, as in the arch. Cement, on the contrary, is used purely as a decorative material, existing solely by cohesion, and not only concealing the constructive parts of the edifice, but, as in the case of the flat architrave of an opening, suggesting the idea of a different principle to that actually employed to span the opening, viz., the lintel instead of the arch. It is, indeed, an utterly *inconstructive* that it cannot even be employed in masses of any size, but we are compelled, if we wish to procure projections of any depth, to form cores of the actual constructive material of the building, without which, whatever may be its *indestructibility* when properly made, it is not even able to bear the leverage of its own weight. In making these remarks, I am far from decrying the use of cement even to *imitate stone decoration*, although undoubtedly there is nothing so likely to produce a meretricious style in art as the use of an *artificial* and *inconstructive* material for decorative purposes: yet we must, I think, admit that in the absence of a better material, it has added at least to the cheerfulness and variety of our street architecture. It has given us the opportunity of *experimenting* in architectural design to an extent to which we could otherwise never have indulged, and sometimes, if the truth were told, in a manner that makes us regret that it is not even more perishable than it actually is. And lastly, it has possibly fostered the love for architectural display which may in the end lead to the execution of better things, in a better, more durable, and more legitimate material. I have written mainly to combat the position that cement is a proper and legitimate material for architectural decoration, equal to, nay, better than stone, because it can be *made* more durable, and that the prejudice entertained against it is without reasonable grounds, originating in the imperfect manufacture and execution of the material itself.

HENRY B. GARLING.

* To be continued.

WALTHAM ABBEY CHURCH.

WHEN you, gentle reader, as the novel writers say, are next about to travel on that very slow coach, the Eastern Counties Railway, and have an hour to spare, if you have not seen Waltham Abbey, arrange to stop at Waltham station, and walk over to the church. Or, if you want a pretext for a short journey into the country, and a pleasant ramble, you may find a less tenable excuse than this same church. When you reach the station, going from London (the distance is under 15 miles), you may see the tower half a mile away to the right, crowned with a large white cross of wood. The abbey itself was known as that of "Holy Cross" in times gone by, because of a cross said to have been brought there by miraculous means in the reign of Canute: but what connection there may be between the white cross in question and that tradition, deponent sayeth not. Saxon Harold built, or rather rebuilt, a church here, from 1062 to 1066: in it, previously to the battle of Hastings, he paid his devotions;—and to it, after the fight, his remains were brought for interment. Part of the church, as it now stands, *may* possibly be a portion of Harold's building, but there is nothing to distinguish the work from that in structures erected after the Normans had been amongst us some time.

The first glance of the interior is very striking and interesting. Lofty and massive cylindrical shafts, channelled and zigzagged, separate

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